

## ABSTRACT OF THE DISCLOSURE

A system is set forth for the exothermic generation of soot depleted syngas  
5 comprising (i) reacting a hydrocarbon-containing fuel with an oxygen containing gas in a  
first reactor to produce the syngas and byproducts comprising CO<sub>2</sub>, H<sub>2</sub>O and soot; and  
(ii) introducing the syngas and byproducts into a second reactor containing a non-  
carbonaceous material that traps the soot for a sufficient time such that the majority of  
the byproduct soot is gasified via reaction with the byproduct CO<sub>2</sub> and/or H<sub>2</sub>O to produce  
10 a syngas stream that is depleted in the soot. The system is particularly suitable for the  
practice of heat exchange reforming wherein a portion of the heat is recovered from the  
soot depleted syngas stream and used as at least a portion of the heat to facilitate the  
additional production of syngas via the (endothermic) catalytic reforming of natural gas  
and steam.

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